

RESPONSE UNDER 37 C.F.R. § 1.116
EXPEDITED PROSECUTION
ART UNIT 3736

In the Claims

1. (Currently amended) A system for monitoring and responding to the environment of an implanted device comprising:

one or more sensors configured for monitoring data relating to variables selected from the group consisting of electrical, magnetic, mechanical, fluid flow, chemical, and thermal properties in the device or its environment in a patient, and

at least one actuator configured for implementing a response to the monitored data in the device by causing a configurational change in the device; and

means for communication selected from the group consisting of a means for communication to one of a series of nested loops of information exchange, monitoring means configured for positioning external to the patient, an external input connected through loops to effectuate change in the device from the at least one actuator, and transmitting and receiving means to the one or more sensors, means for remotely accessing the data;

wherein the one or more sensors directly interact with the device through the at least one actuator such that data transmitted from the one or more sensors to the at least one actuator causes a configurational change in the device.

2. (Original) The system of claim 1 which includes a data storage means.

3. (Previously presented) The system of claim 2 wherein the data storage means is configured to be placeable on the device or contiguous to the device or within or on the body of the patient.

4. (Original) The system of claim 1 which includes a telemetry means.

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5. (Original) The system of claim 4 wherein the telemetry means is an analog or digital electronic device.

6. (Previously presented) The system of claim 1 comprising means for communication to one of a series of nested loops of information exchange.

7. (Previously presented) The system of claim 1 comprising an external input connected through loops to effectuate change in the device from the at least one actuator.

8. (Previously presented) The system of claim 1 additionally comprising monitoring means configured for positioning external to the patient.

9. (Previously presented) The system of claim 1 wherein the sensor is configured to detect changes in pH, temperature, ion concentration, or analyte concentration.

10-18. (Canceled)

19. (Previously presented) The system of claim 1 comprising transmitting and receiving means to the one or more sensors.

20-21. (Canceled)

22. (Currently amended) The system of claim 1 ~~further~~ comprising means for remotely accessing the data.

23. (Previously presented) The system of claim 1 wherein at least one sensor is connected to means for transmitting or receiving data from a computer or phone communication means.

24-26. (Canceled)

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27. (Currently amended) ~~The system of claim 1~~ A system for monitoring and responding to the environment of an implanted device comprising
one or more sensors configured for monitoring data relating to variables selected from the group consisting of electrical, magnetic, mechanical, fluid flow, chemical, and thermal properties in the device or its environment in a patient, and
at least one actuator configured for implementing a response to the monitored data in the device by causing a configurational change in the device;
wherein the one or more sensors directly interact with the device through the at least one actuator such that data transmitted from the one or more sensors to the at least one actuator causes a configurational change in the device wherein at least one sensor is configured to measure fouling of the device or at least one sensor over time.

28. (Currently amended) The system of claim 1 ~~+~~ 27 wherein at least one sensor is configured to measure protein deposition or formation of a bacterial film on a biliary stent, increase in calcification of a urinary stent, and neointimal thickening of an arterial stent, resulting in an increase in thickness, mass and wall shear.

29. (Canceled)

30. (Currently amended) ~~The system of claim 1~~ A system for monitoring and responding to the environment of an implanted device comprising:
one or more sensors configured for monitoring data relating to variables selected from the group consisting of electrical, magnetic, mechanical, fluid flow, chemical, and thermal properties in the device or its environment in a patient, and

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at least one actuator configured for implementing a response to the monitored data in the device by causing a configurational change in the device;

wherein the one or more sensors directly interact with the device through the at least one actuator such that data transmitted from the one or more sensors to the at least one actuator causes a configurational change in the device comprising:

(a) one or more sensors for monitoring the general environment of the implanted device;

(b) monitoring means; and

(c) the one or more sensors configured for communicating information to the monitoring means and to each other, and configured for communicating commands to the actuator.

31. (Previously presented) The system of claim 30 wherein the one or more sensors communicate information to a computer transmitting the information to another computer via the internet.

32. (Original) The system of claim 31 wherein the transmission over the Internet to another computer is via a posting to the world wide web.

33. (Currently amended) An implantable device comprising:
one or more sensors configured for monitoring at least one condition;
at least one actuator configured for implementing a response to the monitored condition in the device by causing a configurational change in the device; and
means for communication to one of a series of nested loops of information exchange;

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wherein the one or more sensors directly interact with the device through the at least one actuator such that data transmitted from the one or more sensors to the at least one actuator causes a configurational change in the device; and

the one or more sensors and the at least one actuator are configured for control by at least one apparatus external to the implantable device.